

Memorandum

Date: January 13, 2014

To: Ms. Kim Turner
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SF Bay-Delta FWO
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Sacramento, California 95814

Ms. Maria Rea
Assistant Regional Administrator
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From: Department of Water Resources

Subject: Fish Restoration Program Annual Report

Please find attached the Fish Restoration Program (FRP) Annual Report for 2010 – 2013. This document was prepared in cooperation with the Department of Fish and Wildlife. We are submitting this document to the National Marine Fisheries Service and the US Fish and Wildlife Service to meet the reporting requirement set forth in Section I in the FRP Agreement.

The FRP Annual Report includes financial reporting, the progress of each project towards meeting the intended restoration goals, and the current status, barriers, and relative accrued benefits of those projects.

If you have any questions, please contact Dan Riordan of my staff. He can be reached at driordan@water.ca.gov or 916-376-9738



Dean F. Messer, Chief
Division of Environmental Services

Attachment

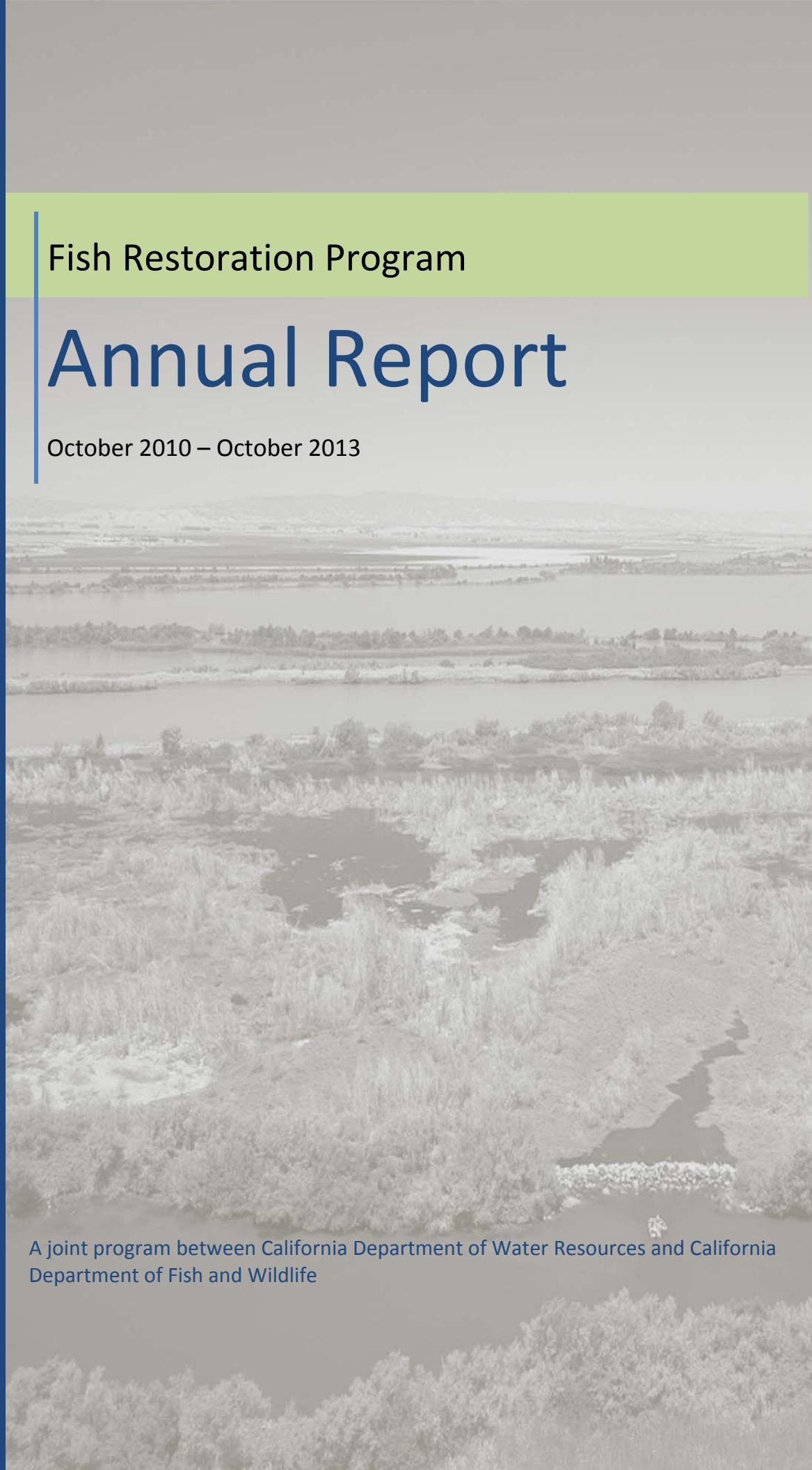
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Fish Restoration Program

Annual Report

October 2010 – October 2013



A joint program between California Department of Water Resources and California Department of Fish and Wildlife



Cover: Prospect Island, Sacramento River Deep Water Ship Channel, and Liberty Island (Photo Credit: Dale Kolke)

Fish Restoration Program

Annual Report

October 2010 – October 2013

State of California
Edmund G. Brown Jr., Governor

California Natural Resources Agency
John Laird, Secretary for Natural Resources

Department of Water Resources
Mark W. Cowin, Director

Laura King Moon, Chief Deputy Director

Division of Environmental Sciences

Dean F. Messer, Chief
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Heidi Rooks, Chief
Mitigation and Restoration Branch
Dennis McEwan, Chief

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And in cooperation with California Department of Fish and Wildlife

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PLANNED FRP AND OTHER TIDAL HABITAT RESTORATION PROJECTS FOR BiOps AND ITP COMPLIANCE

Tidal Restoration Projects*

- Fish Restoration Program
- State and Federal Contractors
- Water Agency

*Listed acreage reflects property boundaries and not amount to be credited

Reference Features

- Yolo Bypass
- Legal Delta
- Suisun Plan of Protection Boundary
- County Boundary
- Tidal Marsh
- Tidal Waters

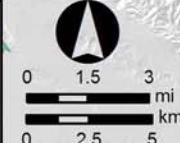
Lower Yolo Restoration
and Enhancement
(1,480 ac of 3,400-ac site)

Prospect Island
Restoration
(1,617 ac)

Overlook Club
Restoration
(160 ac)

Tule Red
Enhancement
(295 ac)

Map file: Rest-Projects-FRP-current_AP_2013-1219gal.mxd



Sources: Tidal Marsh: Suisun (SFEI 1998 - WWR mod 2013),
Delta (CDFW 2007, BDCP 2012 - WWR mod 2013)
Tidal Waters (CDFW 2005 and BDCP 2012 - WWR 2013);
Yolo Bypass (URS 2007 - WWR mod 2010)

Map produced by WWR, December 2013

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1. Introduction

The Fish Restoration Program Agreement (FRPA), between the Department of Fish and Wildlife (DFW) and the Department of Water Resources (DWR), was signed on October 18, 2010. The FRPA addresses specific habitat restoration requirements of the US Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) Biological Opinions (Biological Opinions) for the State Water Project (SWP) and Central Valley Project (CVP) operations. The FRPA is also intended to address the habitat requirements of the DFW Longfin Smelt Incidental Take Permit (ITP) for SWP Delta operations. The primary objective of the Fish Restoration Program (FRP) is to implement the fish habitat restoration requirements and related actions of the Biological Opinions and the ITP in the Delta, Suisun Marsh, and Yolo Bypass and is focused on intertidal and associated subtidal habitat to benefit delta smelt, mesohaline habitat to benefit longfin smelt, and a number of related actions for salmonids. DFW and DWR intend that habitat restoration actions implemented in compliance with the USFWS Biological Opinion that also meet the habitat restoration requirements of the ITP will satisfy the acreage requirements of the ITP.

Pursuant to the FRPA, DFW works cooperatively with and assists DWR to establish the management and financial framework necessary to implement the FRP. DWR, with assistance from DFW, has begun a process to fund, plan, and implement actions, including aquatic habitat restoration to benefit delta smelt, longfin smelt, and winter-run and spring-run Chinook salmon, to mitigate impacts to these species caused by the SWP Delta operations. Specifically these actions include:

- Delta Smelt Biological Opinion Reasonable and Prudent Alternative (RPA) Component 4;
- NMFS Biological Opinion RPA Actions 1.2.6 and 1.6.2 in partnership with the Bureau of Reclamation (Reclamation);
- NMFS Biological Opinion RPA Action Suite 1.6 and 1.7. (The FRP will not be lead, but will provide funding and technical support assistance only.);
- ITP Condition 7.

RPA 4 of the USFWS delta smelt Biological Opinion calls for the creation or restoration of a minimum of 8,000 acres of intertidal and associated subtidal habitat in the Delta and Suisun Marsh. The ITP requires the restoration of 800 acres of mesohaline habitat (included within the 8,000 acres required for RPA 4) to benefit longfin smelt.

Additionally, RPA 4 calls for the development of an overall monitoring program to evaluate the effectiveness of restoration actions. The FRP Monitoring project team is working on developing a plan that will fulfill this requirement (section 3.2.2).

DWR's habitat restoration obligations may also benefit steelhead, sturgeon, and other native fish species.

Compilation of the initial annual report was delayed, resulting in including activities during the first three years of the FRP to be combined into this initial annual report. This report covers activities since the program began in October 2010 to October 2013.

2. Progress Towards Meeting Regulatory Requirements

2.1 USFWS Smelt Biological Opinion RPA 4

2.1.1 Prospect Island

2.1.1.1 Restoration

DWR acquired the northern three-quarters of Prospect Island (1316 acres) in January 2010 to restore it to tidal action by permanently breaching the levees, with the goal of creating tidal wetlands pursuant to RPA 4. The restoration of Prospect Island is expected to not only provide habitat for native fish but also enhance the Delta food web, providing ecosystem benefits outside of Prospect Island. Restoration of Prospect Island will likely partially satisfy habitat restoration acreage requirements in the NMFS Salmonid Biological Opinion Action 1.6.1 (section 2.3).

DWR and DFW are looking at several conceptual restoration designs. All options involve the use of wide breaches and the excavation of central dendritic channels. A modeling effort lead by the FRP consultants is currently underway to inform the restoration plans for Prospect Island. Approximately 15 conceptual restoration alternatives were modeled through an initial screening process in 2012. A two day workshop was held in October 2012 for a Delta Regional Ecosystem Restoration Implementation Plan (DRERIP) evaluation to help select the final eight alternatives that would advance to a more detailed modeling phase. This second modeling phase is currently being undertaken. When modeling is complete, a technical team will meet to determine which alternatives will be evaluated in the Environmental Impact Report (EIR).

Restoration alternatives were significantly influenced by early consultation with the US Army Corps of Engineers (USACE). Initial restoration designs included the possibility of breaching the Deep Water Ship Channel (DWSC) levee on the western boundary of Prospect Island. Modification of a Federal Navigation levee requires a 408 permit. FRP staff met with USACE and the Central Valley Flood Protection Board (CVFPB) in March 2013 to discuss whether pursuing a 408 permit was a viable option. USACE believes a breach in the DWSC levee will increase sedimentation in the channel and lead to increased maintenance dredging. Any modification to this levee is seen as detrimental to the purpose of the levee and therefore

would likely not be approved. The outcome of this meeting led to removal of restoration designs with DWSC breaches to be considered in the EIR.

The final restoration alternatives will be evaluated within the environmental documentation process. Preliminary California Environmental Quality Act (CEQA) compliance strategies are being developed as well as a plan for early outreach to stakeholders.

On May 17, 2013, DWR released a Notice of Preparation (NOP) for the Prospect Island habitat restoration project. A public scoping meeting was held on June 10, 2013. Four members of the public attended the scoping meeting and verbal comments were recorded. Written comments from ten stakeholders were received. All comments to the NOP were compiled into a FRP stakeholder database and a CEQA scoping report was produced (available on the FRP website under the Prospect Island project link). These comments will be incorporated into the public draft EIR, which is expected to be released in late 2014 or early 2015.

2.1.1.2 Prospect Island Groundwater Monitoring Study

DWR North Central Region Office has undertaken a site characterization and groundwater monitoring study which began in January 2010. The purpose of this study is to better characterize the subsurface hydrogeological conditions in the Prospect Island and Ryer Island study area (along Miner Slough on the eastern boundary of Prospect Island and the corresponding portion of Ryer Island to the east of Miner Slough) to further evaluate the potential for seepage to occur on Ryer Island as a result of flooding on Prospect Island. In this study, seepage is defined as water that results from percolation through or under levees, appearing as surface water or groundwater within the root zone on lands adjacent to the levees. The first phase of this study focused on reviewing previous studies, subsurface exploration, well installation, groundwater and surface water level monitoring, land and bathymetry surveying, and bed sediment sampling. The second phase of the study includes additional data collection, creation of project-specific 3-D geographic information system, geologic and hydrologic data analysis, seepage modeling and final reporting. A summary of the data collected was prepared and published in June 2012. We anticipate the final project report to be complete in the early part of 2014.

2.1.1.3 Prospect Island Land Management

DWR's legal access to Prospect Island was thoroughly investigated by DWR Real Estate and the Geodetic branches. DWR Office of the Chief Counsel has established that DWR's legal access is through the gate immediately north of the Arrowhead Marina. The FRP staff gained compliance with affected landowners by meeting and explaining our legal right to access with the adjacent landowners and the marina owner.

There has been some question as to the exact property boundaries of DWR's portion of Prospect Island. Two historic slough channels within the Miner Slough levee may not belong to either DWR or the State Lands Commission. Also, the question of whether DWR owns the Northern Cross levee needs to be determined. DWR Geodetic staff is working to resolve and confirm property boundaries.

Vegetation on the crown and upper slopes of the Miner Slough levee along Prospect Island was mowed from November 2012 to February 2013, under terms and conditions set forth in a Routine Maintenance Agreement issued by DFW. Shortly afterwards, a levee inspection was performed, identifying 25 sites needing repairs within the next year. Of these, eighteen were determined to be more urgent. FRP staff is working with Division of Engineering (DOE) to enable the more urgent repairs to be made during the 2014 work window allowed under the Prospect Island Streambed Alteration Agreement. A mitigated negative declaration and necessary permits are being prepared.

It is our intention to continue to clear vegetation on the Miner Slough levee using a combination of boom mowers and goat herds. Priority levee sites that will be repaired in 2014 will be monitored during the first half of 2014, prior to being repaired, to insure they do not become critical.

2.1.1.4 Reactivation of Reclamation District 1667

DWR is moving forward with plans to reactivate the Prospect Island Reclamation District (RD), RD 1667. RD 1667 became inactive when Reclamation purchased the upper two-thirds of Prospect Island from the Sakata Brothers in 1995. After DWR acquired the Prospect Island property from Reclamation in January 2010, DWR discussed the reactivation of RD 1667 with the Port of West Sacramento (Port), owner of 309 acres at the southern end of Prospect Island. The Port is undecided about whether they will participate on the Board of Trustees. A recent opinion from the DWR Office of the Chief Counsel is that DWR can reform the RD without the Port's participation. DWR is motivated to have the RD in place so that the Prospect Island levees can be maintained efficiently and effectively.

2.1.2 Overlook Club

The Overlook Club (Property 322) is one of three properties on Bradmoor Island, located within the Nurse Slough Complex of Suisun Marsh, Solano County, California. DWR purchased the 245-acre Overlook club property in February 2013 for tidal habitat restoration.

Property 322 is currently maintained as a managed wetland, primarily for waterfowl habitat and recreational hunting, as are the two adjacent properties. Bradmoor Island is a unique feature within the Suisun Marsh due to the presence of a hill in the central portion of the island and its proximity to Little Honker Bay, which may provide a local sediment source to the

property once it is restored. The property consists of approximately 36 acres of upland grassland, currently used for cattle grazing; 33 acres of tidal berm; and 156 acres of managed wetland, including open water features. The remaining area includes the levees, roads, and navigable waters (existing dredger cuts in the tidal berm).

Restoration of the property is planned for 2016 and will meet restoration requirements under the Biological Opinions and the ITP (section 2.5) for the FRP and the Suisun Marsh Habitat Management, Preservation, and Restoration Plan. DWR is currently developing models and identifying opportunities to optimize habitat value for native fish and wildlife.

2.2 NMFS Salmonid Biological Opinion Action 1.2.6

RPA Action 1.2.6 states, "Reclamation shall direct discretionary funds to implement the Battle Creek Salmon and Steelhead Restoration Project. Phase 1A funding is currently allocated through various partners and scheduled to commence in summer 2009. DWR shall direct discretionary funds for Phase 1B and Phase 2, consistent with the proposed amended Delta Fish Agreement by December 31 of each year. Reclamation and DWR will submit a written report to NMFS on the status of the project, including phases completed, funds expended, effectiveness of project actions, additional actions planned (including a schedule for further actions), and additional funds needed. The Battle Creek Salmon and Steelhead Restoration Project shall be completed no later than 2019."

FRPA Amendment 1, signed on November 15, 2010, clarifies that the Battle Creek Project will be paid for with a \$12 million fixed cost, payable over two consecutive fiscal years

In a letter dated December 8, 2010, DFW requested that DWR provide \$12 million to the Project, pursuant to FRPA. DWR and DFW agreed that the \$12 million will be the entire DWR contribution to the Battle Creek Project and that no further funds will be contributed annually or as lump sum.

DWR provided a total of \$12 million to the Battle Creek Salmon and Steelhead Restoration Project (Battle Creek Project) at the direction of the DFW pursuant to FRPA in 2011 and 2012. In a letter dated December 27, 2010, DWR received confirmation from NMFS that the transfer of these funds to the Project would fully satisfy DWR's obligation under Action 1.2.6 of the Biological Opinion.

The first \$5.3 million was provided to DFW in June 2011, to be used for Phase 1A in order for Phases 1B and 2 to move forward in a timely manner. The second \$6.7 million was provided directly to Reclamation in June 2012, to be used to fund the activities set forth in Phase 2 of the Project. The \$12 million funding provided by DWR ensures that all phases of the Project will be fully funded, thereby meeting, DWR's obligation under RPA Action 1.2.6.of the Biological Opinion.

DWR requested that NMFS concur that the transfer of the \$12 million to DFW and Reclamation has fully satisfied all of its legal obligations under Action 1.2.6 of the Biological Opinion. DWR

has made several attempts to correct the statements in the Biological Opinion that are inconsistent “with the proposed amended Delta Fish Agreement” (which later became FRPA); specifically that “DWR shall direct discretionary funds for Phase 1B and Phase 2, consistent with the proposed amended Delta Fish Agreement *by December 31 of each year*”. DWR has requested written confirmation of NMFS’ concurrence on this matter, stating that DWR has fully complied with RPA Action 1.2.6. NMFS responded in a letter dated May 6, 2013 that they do not agree that compliance has been met. DWR’s Office of the Chief Counsel is considering this.

2.3 NMFS Salmonid Biological Opinion Action 1.6.1

Action 1.6.1 calls for the restoration of floodplain rearing habitat for juvenile winter-run and spring-run Chinook salmon and Central Valley steelhead in the lower Sacramento River basin by providing significantly increased acreage of seasonal floodplain. Though the FRP will not lead the efforts being undertaken under Action 1.6.1, the FRP will provide technical assistance and funding. For cost-share restoration actions, acreage credit will be pro-rated based upon DWR’s SWP funding contribution towards the implemented action and the monitoring and maintenance efforts over the life cycle of the project.

The FRP intends to partially satisfy Action 1.6.1 with the Prospect Island restoration project. As stated in the Biological Opinion, “The USFWS’s Delta Smelt biological opinion includes an action to restore 8,000 acres of tidal habitat for the benefit of Delta smelt. If these 8,000 acres also provide suitable rearing habitat for salmonids, they may be used in partial satisfaction of the objective of this action.”

2.4 NMFS Salmonid Biological Opinion Action 1.6.2

On October 10, 2012, DWR submitted the FRP Implementation Strategy (section 3.1) to NMFS as fulfillment of the “Liberty Island/Lower Cache Slough enhancement plan” that is required by RPA Action 1.6.2.

Initially, restoration projects under the FRP program will focus on the Cache Slough region, as outlined in the Implementation Strategy. Specific near-term projects in the Liberty Island / Cache Slough Region are identified and described, as well as our land acquisition strategy for future restoration in the region. Monitoring biological responses to FRP restoration projects is also identified in the Implementation Strategy.

2.5 DFW Longfin Smelt ITP

Habitat restoration required by the ITP aims to improve overall habitat quality for longfin smelt in the Bay Delta Estuary through the acquisition, initial enhancement, restoration, long-term management, and long term-monitoring of 800 acres of inter-tidal and associated sub-tidal wetland habitat in a mesohaline part of the estuary. To complete the restoration of these 800 acres, the FRP is scheduled to restore a minimum of 160 acres every two years for ten years.

Other requirements within the ITP include developing site-specific management and monitoring plans appropriate to improve habitat conditions for longfin smelt, connecting restored areas to tidal marsh corridors, and allowing for natural transitions to adjacent sub-tidal, marsh, and upland habitats in restoration designs. Projects that fulfill restoration requirements under the ITP may also count towards the 8,000 acre requirement of the USFWS Biological Opinion RPA 4 (section 2.1), as outlined within the FRP Agreement (section A.3.d). Wetland restoration in Suisun Marsh, such as Property 322, is likely to satisfy both requirements.

3. Other Activities

3.1 FRP Implementation Strategy

Pursuant to FRPA Section B, DWR and DFW developed an Implementation Strategy in coordination with USFWS, NMFS, and Reclamation. The Implementation Strategy was developed by DWR and DFW staff in 2011 and 2012, approved by the DWR Deputy Director for the Delta and Statewide Water Management in March 2012, and published that same month.

The purpose of this Implementation Strategy is to describe the process by which DWR and DFW will implement the FRP. Section B of FRPA requires DWR, with assistance from DFW, to develop an Implementation Schedule that will identify restoration actions, estimated costs, targeted acreage, and a timeline for DWR's implementation of restoration actions to satisfy DWR's obligations under the Biological Opinions and ITP (Appendix A).

Chapter 1 of the Implementation Strategy contains a general road map of the FRP, including: program goals and objectives, the organizational structure of the program, the estimated costs, acreage targets and timelines, as well as the FRP's relationship to other restoration programs. Chapter 2 outlines the proposed restoration actions, including the scientific principles upon which all of the program's restoration actions will be based. This chapter also addresses a general restoration plan: financing, land acquisition, legal and land management issues, stakeholder outreach, restoration planning and design, environmental compliance, monitoring and adaptive management, construction, and post-project management. Chapter 3 summarizes how the FRP will identify and choose restoration actions. Chapter 4 discusses monitoring requirements under the Biological Opinions and ITP and implementing the FRP monitoring plan. The final chapter covers post-project maintenance issues such as property transfer, management costs, and funding.

A draft of the Implementation Strategy was distributed to a list of stakeholders for public review in the fall of 2011. Comments were received from four stakeholders. Each stakeholder received a disposition letter with their comments addressed. Where appropriate, stakeholder comments were incorporated in the final draft of the Implementation Strategy.

3.2 FRP Project Teams

3.2.1 Outreach

Successful implementation of the FRP's restoration goals will involve extensive outreach efforts to keep stakeholders and interested agencies apprised of the FRP's progress and plans. To date, such efforts include the development of a FRP website, quarterly e-News updates through a FRP listserv, several informational pamphlets, and meetings with various stakeholders.

The FRP website provides a general overview of the program and serves as a public-accessible depository for all documents that are relevant to the program's efforts. Current content includes (but is not limited to) the Fish Restoration Program Agreement, the Implementation Strategy and other associated FRP documents such as fact sheets, frequently asked questions, program location maps, communication plans, and a stakeholder assessment. The website contains links to each separate restoration project under the FRP. The website also provides a means by which the public can contact the FRP staff.

Stakeholders and members of the public can request to be a member of the FRP listserv. These updates provide the public with general updates of the program and are also a way to announce significant events such as the release of the NOP for the Prospect Island restoration project.

As part of the outreach effort, the FRP program manager and the Prospect Island project manager have, together, given presentations in twenty-five meetings with stakeholders, individuals, and public agencies. Efforts have been made to keep those stakeholders who will be most affected by the Prospect Island restoration project apprised of DWR's proposed restoration design alternatives. The FRP has also been diligent in keeping other Delta stakeholders updated with the program's purpose and engaging in early consultation with regulatory agencies. Informational brochures were created to allow further dissemination of programmatic and project information at these meetings.

A FRP consulting firm conducted confidential stakeholder interviews with a variety of Delta and Suisun Marsh stakeholders. Twenty-five stakeholders with extensive knowledge of and involvement with, Delta issues were interviewed to learn more about stakeholder interests, issues, and concerns about the FRP. Stakeholders' perspectives were represented by landowner, local government, flood control, state agencies, habitat restoration, agricultural, recreation, water quality, and public health. The interests, issues, and concerns the stakeholders expressed are summarized in the Stakeholder Assessment (available on the FRP website).

The programmatic Communications and Engagement Plan, developed as a result of the Stakeholder Assessment, will help guide the FRP's stakeholder engagement efforts. Separate project-specific communication and engagement plans will be developed as needed. The Prospect Island Communication and Engagement plan has been developed and is available on the FRP website.

3.2.2 Monitoring

Habitat restoration requirements of the Biological Opinions and ITP include monitoring restored areas and reporting on the effectiveness of restoration actions. In 2012, the FRP staff met with Interagency Ecological Program (IEP) fisheries scientists to evaluate the utility of existing conceptual models for determining monitoring metrics and predicting how metrics will respond to habitat restoration actions. Work continued through 2013 to develop current hypothesis and predictions about restoration outcomes, and to create a framework that will guide restoration monitoring. A DFW Budget Change Proposal for Fiscal Year 13-14 to create and staff a FRP monitoring program was submitted and approved. The monitoring program will add seven permanent positions to DFW's Fish Restoration Program and cost \$1,100,000 per year through a reimbursable contract with DWR.

3.2.3 Permitting

In the spring of 2013, FRP staff and consultants held the initial Permit Project Team meeting. The Permit project Team is comprised of representatives from each of the resource and regulatory agencies (DWR, DFW, USFWS, NMFS, USACE, Central Valley Regional Water Quality Control Board, and CVFPB). The purpose of the Permit Project Team will be to provide an opportunity for regular input from the agencies on the scope of the proposed project, potential environmental impacts, required mitigation and monitoring, and alternatives for consideration in the permit application. Permit Project Team meetings will also allow the FRP to coordinate submission requirements between agencies.

Currently, environmental documentation and permitting are being prepared for repairs of the Miner Slough levee on Prospect Island, which will be completed during the 2014 work window (August 1 – November 30) allowed under the Routine Maintenance Agreement DWR has with DFW.

3.2.4 Property Acquisition

A Land Management and Acquisition Strategy Project Team was convened this year in preparation for the completion of the Cache Slough Complex Conservation Assessment (section 3.2.5). The team is composed DWR and DFW FRP staff and DWR Real Estate Branch (REB) staff. Primary objectives of the team are to identify and analyze constraints to timely land acquisition by DWR REB, Wildlife Conservation Board, and land trusts or conservation groups; identify, define, prioritize, develop potential restoration scenarios for restoration units, and evaluate feasibility. To date, the team has evaluated the DWR REB process and developed a FRP specific timeline of the acquisition process; developed feasible restoration units based on hydrology, elevation, flood protection needs, connectivity to tidal action, existing land uses, easements and other encumbrances; and sends a team member to public agricultural meetings to serve as a public contact for the FRP in the north Delta and Suisun Marsh. The team is currently developing a Constraints and Impediments to Land Acquisition white paper. Moving forward,

this team will bring constraints to land acquisition to upper management for resolution; provide an accessible public face for the FRP; contribute to volume three of the Cache Slough Complex Conservation Assessment (section 3.2.5); and work with potential willing sellers and restoration partners to acquire properties.

3.2.5 Cache Slough Complex Conservation Assessment

The Cache Slough Complex is one of the primary areas targeted for wetland restoration. However, currently identified projects will only fulfill about half of the required acreage. To guide the selection and implementation of future restoration projects, FRP staff and consultants are preparing an assessment of the Cache Slough Region. This will be comprised of three volumes: Volume 1 will describe existing conditions of the Cache Slough region, Volume 2 will identify ecosystem processes driving restoration design, and Volume 3 will develop site selection criteria that will evaluate the appropriateness of a given site for tidal wetland restoration. Volume 1 is expected to be complete by early 2014, and preliminary work has begun on Volumes 2 and 3.

Work on Volume 1 was a collaborative effort between FRP staff and consultants. To date, a completed draft of Volume 1 has been compiled and a workshop was held to plan further development. Volume 1 is currently being edited to consolidate content and insure the accuracy of figures.

3.3 FRP Coordination Efforts

To ensure consistency with other habitat restoration efforts in the Bay-Delta, DWR has entered into two Memoranda of Agreement (MOA). The first, with the State and Federal Contractors Water Agency (SFCWA), sets forth the framework and general terms that SFCWA and DWR mutually agree will guide their coordinated efforts to develop, manage, construct, and implement restoration projects. The FRP and SFCWA staffs meet monthly to provide program and project updates and to coordinate restoration efforts.

SFCWA is carrying out restoration projects to help fulfill the requirements of the Biological Opinions and ITP. Although the FRP is not a lead in planning and implementing these restoration projects, it is expected that projects will be consistent with the goals and processes laid out in the FRP Implementation Strategy, and that DWR will purchase restoration credit upon completion of these projects, per the SFCWA MOA. For this reason, FRP staff regularly attend SFCWA's meetings with the Fisheries Agencies Strategy Team (FAST) and provide input on their projects as they are developed. In addition, managers from DWR, SFCWA, DFW, Delta Conservancy, and other agencies meet monthly to coordinate restoration activities and share ideas.

The second MOA, regarding the early implementation of habitat restoration projects, establishes a review team and crediting process for habitat restoration projects. FAST is comprised of technical representatives from DFW, NMFS, USFWS, and Reclamation. The MOA sets forth a habitat restoration crediting process by FAST that involves technical assistance, project review, and crediting determination towards both Biological Opinions / ITP compliance and Bay Delta Conservation Plan (BDCP) early implementation.

FRP staff attends quarterly Delta Conservancy restoration network meetings. The purpose of this effort is to coordinate restoration efforts with public, private, and non-government organizations.

Coordination efforts extend beyond agency meetings as the FRP has sought and continues to seek expert technical review through quarterly meetings of the Cache Slough Complex Technical Team. Key science-based decisions have been vetted during these meetings. An expert panel was convened for a two-day DRERIP review of restoration alternatives that should be advanced for further modeling (section 2.1.1.1). Additionally, DWR FRP staff are in the same branch as the DWR BDCP technical staff and FRP efforts are coordinated with BDCP planning. FRP staff have also participated in the Delta Science Program review of habitat restoration.

DWR and Reclamation staffs are leading the effort to fulfill floodplain restoration requirements in the Yolo Bypass (section 2.3). The FRP can provide funding and technical support for these efforts. FRP staff have attended meetings and provided comments on the development of the Yolo Bypass Salmonid Habitat Restoration and Fish Passage Implementation Plan, which is intended to outline the implementation of NMFS Biological Opinion RPA Action suites 1.6 and 1.7. Other specific projects that the FRP has provided support for include the proposed North Bay Aqueduct Realignment, Knaggs Ranch Restoration Study and Lower Putah Creek Realignment. Staff are also involved with IEP Yolo Bypass Project Work Team meetings to keep up to date on technical information and informed of future studies and projects occurring in the region.

4. Financials

The FRP is funded in whole by DWR through SWP funding to meet permit compliance for SWP Delta operations. Implementation of actions required by the Biological Opinions and the ITP is funded by SWP funds as part of the ongoing SWP operations and maintenance, and requires coordination with DWR's State Water Project Analysis Office through an internal procedure based on Water Resources Engineering Memorandum 65a.

With the requirement to restore 8,000 acres, including the costs for land acquisition, land management, planning, design, permitting, monitoring, adaptive management, construction, post-project management, consultants and staff, implementing the FRP is estimated to cost at

least \$205 million over 10 years (see FRP Implementation Strategy). To date, from October 2010 through October 2013, the FRP expenditures total \$20.1 Million. Expenditures for the FRP per fiscal year are shown below in **Table 1**.

Table 1. Fish Restoration Program annual expenditures to date.

STATE FISCAL YEAR FRP EXPENDITURES	ANNUAL ACCOUNT	CAPITAL ACCOUNT(s)	COMBINED TOTAL
FY 2009-2010	\$134,775		\$134,775
FY 2010-2011	\$681,745		\$681,745
FY 2011-2012	\$4,008,110	\$5,300,000	\$9,308,110
FY 2012-2013	\$1,893,220	\$7,663,895	\$9,557,115
FY 2013-2014	\$407,515	\$54,425	\$461,940
FRP EXPENDITURES TO DATE (TOTALS)	\$7,125,365	\$13,018,320	\$20,143,685

During the reporting period of October 2010 to October 2013 the following FRP expenditures were made in the categories listed below in **Table 2** for a total Program cost to date of \$20.1 Million.

Table 2. Fish Restoration Program expenditures to date by category.

FRP EXPENDITURES BY CATEGORY	2010-2013 Expenditures
FRPA General Costs (DFW staff contracts & DWR staff costs, Program and Projects Administrative costs, Misc.)	\$2,561,685
Prospect Island Acquisition Costs (DWR staff costs, NCRO Ground Water Study)	\$704,000
Prospect Island Restoration Planning & Habitat Contracts (DWR staff costs, Consultants contracts costs, Prospect EIR work, Cache Slough Assessment, etc.)	\$3,665,000
Prospect Island Interim Land Management (Property management costs, DWR staff costs, levee repair work)	\$213,000
Suisun Marsh Overlook Club Acquisition Costs (Property 322 acquisition, DWR staff costs)	\$702,000
Suisun Marsh Overlook Club Restoration Planning (DWR staff costs, design, surveys, modeling, etc.)	\$298,000
Battle Creek Salmon & Steelhead Restoration Project Funding (NMFS Action 1.2.6)	\$12,000,000
FRP EXPENDITURES TO DATE (TOTALS)	\$20,143,685

5. Constraints and Impediments to Restoration

FRP staff have encountered and are anticipating some significant constraints and impediments to meeting the timelines established in the Biological Opinions. The more immediate constraints and impediments include:

- Staff Resources
- Conflicting Land Use
- Land Acquisition
- Potential Impacts to Neighboring Lands
- Permitting
- Scientific Uncertainty
- Hydrologic and Numerical Modeling